

Application No.: 10/007,502
Amendment dated: January 27, 2005
Reply to Office Action of August 27, 2004
Attorney Docket No.: 0005.1099

This listing of claims will replace all prior versions and listings of claims in this application:

(a) Listing of Claims

1. (currently amended) A method for fabricating ~~optical~~ micro-optical elements, comprising:
forming topographic features on a surface of an optical element substrate;
mechanically polishing the surface of the substrate to modify the features to produce a curved optical surfaces on ~~of~~ the optical element substrate; and
dicing the substrate into the optical elements.
2. (original) A method as claimed in claim 1, wherein the step of forming the topographic features comprises forming blind holes into the substrate
3. (original) A method as claimed in claim 1, wherein the step of forming the topographic features comprises forming blind holes, having mesa profiles, into the substrate.
4. (original) A method as claimed in claim 1, wherein the step of forming the topographic features comprises forming a feature projecting from the substrate.
5. (original) A method as claimed in claim 1, wherein the step of forming the topographic features comprises forming mesas in the substrate.
6. (currently amended) A method as claimed in claim 1, wherein the step of forming the topographic features comprises etching a blind holes into the substrate to a depth of a material layer.
7. (original) A method as claimed in claim 1, wherein the step of forming the topographic features comprises etching blind holes into the substrate in a timed process.
8. (original) A method as claimed in claim 1, wherein the step of polishing the surface comprises performing chemical mechanical polishing of the surface.

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9. (original) A method as claimed in claim 1, further comprising optically coating the surface after the polishing step.
10. (original) A method as claimed in claim 9, wherein the step of optically coating the surface comprises depositing a highly reflective layer on the surface.
11. (original) A method as claimed in claim 9, wherein the step of optically coating the surface comprises depositing an antireflective layer on the surface.
12. (original) A method as claimed in claim 1, further comprising optically coating the surface after the polishing step and before the dicing step.
13. (original) A method as claimed in claim 1, wherein the step of dicing the substrate comprises sawing the substrate.
14. (original) A method as claimed in claim 1, wherein the step of dicing the substrate comprises cleaving the substrate.
15. (previously presented) A method as claimed in claim 1, wherein the step of forming the topographic features on the surface of the optical element substrate comprises forming the features on silicon or gallium phosphide wafer material.
16. (currently amended) A method for fabricating reflective ~~optical~~ micro-optical elements with a concave curvature, comprising:
 - forming blind holes into a surface of an optical element substrate;
 - mechanically polishing the surface of the substrate to modify the blind holes to produce curved, concave optical surfaces on the optical element substrate;
 - coating the optical element substrate with a reflective coating; and
 - dicing the substrate into the concave optical elements.
17. (new) A method as claimed in Claim 1, wherein the step of dicing is performed in two directions to thereby separate a two dimensional array of optical elements into discrete optical elements.

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18. (new) A method as claimed in Claim 1, wherein sidewalls of the topographic features extend substantially orthogonally to the surface of the substrate.
19. (new) A method as claimed in Claim 16, wherein the step of dicing is performed in two directions to thereby separate a two dimensional array of optical elements into discrete concave optical elements.
20. (new) A method as claimed in Claim 16, wherein the sidewalls of the blind holes are substantially orthogonal to the surface of the substrate.